

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A packet buffering system for predictively processing data packets in a data packet network comprising:

at least one input port for receiving data packets from a plurality of sources;

at least one output port for sending out data packets to a plurality of destinations;

~~a processor for processing packet data; and~~

a packet predictor, coupled to said at least one input port, for predicting information about a future packet based on history of on a previously received packet;

a plurality of queues for storing packets received from said plurality of sources, and for storing said predicted information about said future packet; and

a processing core, coupled to said plurality of queues, such that at least some processing for the predicted said future packet may be accomplished before the predicted said future packet actually arrives at the system.
2. (original) The system of claim 1 wherein the data packet network is the Internet network.
3. (currently amended) The system of claim 1 wherein the packet predictor ~~mechanism~~ utilizes a history record periodically updated by the system, to generate predicted data.
4. (original) The system of claim 3 wherein the history record comprises characteristics of recently received data packets.
5. (currently amended) The system of ~~claim 5~~ claim 4 wherein the history record further comprises results of past predictions.

6. (currently amended) The system of claim 1 wherein ~~packet prediction comprises~~ said packet predictor predicts ~~predicting~~ specific characteristics, comprising one or more of packet type, packet flow identification, sender information, destination information, and packet size for said future packet.
7. (original) The system of claim 1 comprising a packet router.
8. (original) The system of claim 1 comprising a data server.
9. (currently amended) A packet predictor system for predicting information about a future packet to be received ~~enhancing~~ within a data packet processor, the predicted information being processed by a processing core prior to the future packet being received, the processing reducing latency in routing the future packet to its destination, the system comprising:

an input for receiving information about a first packet received for processing;

a packet predictor, coupled to said input, for predicting characteristics of a packet to arrive at a later time the information about the future packet, based upon the information received about the first packet;

a plurality of queues, coupled to said input and said packet predictor, for storing the predicted information; and

a processing core, coupled to said plurality of queues, for processing the predicted information before the future packet is received by said input;

wherein by processing the predicted information before the future packet is received, latency for delivering the future packet to an output is reduced.

and

~~an output for providing the predicted characteristics to the processor for processing ahead of arrival of a real packet fulfilling the prediction.~~
10. (currently amended) The packet predictor system of claim 9 wherein the data packet processor comprises a data router operating on the Internet network.
11. (currently amended) The packet predictor system of claim 9 ~~of claim 7~~ comprising a history record consulted each time a prediction is made.

12. (currently amended) The packet predictor system of claim 11 wherein the history record comprises history of real packets received and processed.
13. (currently amended) The packet predictor system of claim 11 wherein the history record comprises history of predictions and ~~result~~ results of the predictions.
14. (currently amended) The packet predictor system of claim 9 wherein the history record is stored in a memory accessible to the ~~mechanisms~~ system.
15. (currently amended) The packet predictor system of claim 9 wherein said packet ~~prediction—predictor~~ comprises—predicting ~~predicts~~ specific characteristics, comprising one or more of packet type, packet flow identification, sender information, destination information, and packet size.
16. (currently amended) The packet predictor system of claim 9 ~~of claim 7~~ wherein the data packet processor comprises a data server.
17. (currently amended) A method for reducing latency in packet processing ~~for~~ within a packet processor, comprising the steps of:
 - receiving packets from a plurality of sources;
 - developing and storing a history of packet information from the received packets;
 - predicting future information about future packets from the history; and
 - processing the future information about the future packets before the future packets are received;
 - wherein by processing the future information about the future packets before the future packets are received, latency in delivering the future packets to their destinations is reduced; and
 - wherein the information comprises one or more of packet type, packet flow identification, source information, destination information, and packet size.

(a) ~~speculatively predicting characteristics of packets yet to arrive for processing;~~
~~based on packets actually received for processing; and~~

- ~~(b) accomplishing speculative processing on the predicted characteristics.~~
18. (original) The method of claim 17 wherein the packet processor is coupled with a data packet network.
 19. (original) The method of claim 18 wherein the data packet network is the Internet network.
 20. (currently amended) The method of ~~claim 15~~claim 17 comprising a step for maintaining a history of either or both of packets actually received and results of prior predictions.
 21. (canceled)
 22. (currently amended) The method of claim 17 wherein ~~in step (b) the speculative~~
said step of processing is abandoned if it is determined not to agree with the real data once it arrives.
 23. (canceled)
 24. (currently amended) The method of claim 17 wherein in, if some of the results from processing the predicted ~~characteristics~~future information are wrong they are abandoned, and results which are correct are retained, to reduce processing for an arriving packet based on the prediction.